WHAT IS CLAIMED IS:

1. A method for detecting halitosis, said method comprising:

contacting an array of sensors with mammalian breath suspected of containing a marker gas indicative of halitosis; and

detecting said marker gas to determine the presence of halitosis.

2. A method in accordance with claim **1**, wherein said array of sensors comprises a member selected from the group consisting of a surface acoustic wave sensor, a quartz microbalance sensor; a conductive composite; a chemiresistor; a metal oxide gas sensor and a conducting polymer sensor, a dye-impregnated polymer film on fiber optic detector, a polymer-coated micromirror, an electrochemical gas detector, a chemically sensitive field-effect transistor, a carbon black-polymer composite, a micro-electro-mechanical system device and a micro-opto-electro-mechanical system device.

3. A method in accordance with claim **1**, wherein said marker gas is a member selected from the group consisting of alkanes, alkenes, alkynes, dienes, alicyclic hydrocarbons, arenes, alcohols, ethers, ketones, aldehydes, carbonyls, carbanions, polynuclear aromatics, biomolecules, sugars, isoprenes isoprenoids, VOC, VOA, indoles, skatoles, diamines, pyridines, picolines, an off-gas of a microorganism and fatty acids.

4. A method in accordance with claim **1**, further comprising generating a response from said sensors and inputting said response to a neural net trained against known marker gases.

5. A method in accordance with claim **1**, wherein said marker gas is an off gas of a member selected from the group consisting of *Prevotella intermedia, Fusobacterium nucleatum, Porphyromonas gingivalis, Porphyromonas endodontalis, Prevotella loescheii, Hemophilus parainfluenzae, Stomatococcus muci, Treponema denticola, Veillonella species, Peptostreptococcus anaerobius, Micros prevotii, Eubacterium limosum, Centipeda periodontii, Selemonad aremidis, Eubacterium species, Bacteriodes species, Fusobacterium periodonticum, Prevotella melaninogenica, Klebsiella pneumoniae, Enterobacter cloacae, Citrobacter species and Stomatococcus mucilaginus.*

6. A method for detecting periodontal disease, said method comprising:

contacting an array of sensors with mammalian breath suspected of containing a marker gas indicative of periodontal disease; and

detecting said marker gas to determine the presence of periodontal disease.

7. A method in accordance with claim 6, wherein said array of sensors comprises a member selected form the group consisting of a surface acoustic wave sensor, a quartz microbalance sensor; a conductive composite; a chemiresistor; a metal oxide gas sensor and a conducting polymer sensor, a dye-impregnated polymer film on fiber optic detector, a polymer-coated micromirror, an electrochemical gas detector, a chemically sensitive field-effect transistor, a carbon black-polymer composite, a micro-electro-mechanical system device and a micro-opto-electro-mechanical system device.

8. A method in accordance with claim 6, wherein said marker gas is a member selected from the group consisting of alkanes, alkenes, alkynes, dienes, alicyclic hydrocarbons, arenes, alcohols, ethers, ketones, aldehydes, carbonyls, carbanions, polynuclear aromatics, biomolecules, sugars, isoprenes isoprenoids, VOC, VOA, indoles, skatoles, diamines, pyridines, picolines, an off-gas of a microorganism and fatty acids.

9. A method in accordance with claim 6, further comprising generating a response from said sensors and inputting said response to a neural net trained against known marker gases.

10. A method for detecting pneumonia, said method comprising:

contacting an array of sensors with mammalian breath suspected of containing a marker gas indicative of pneumonia; and

detecting said marker gases to determine the presence of pneumonia.

11. A method in accordance with claim 10, wherein said array of sensors comprises a member selected from the group consisting of a surface acoustic wave sensor, a quartz microbalance sensor; a conductive composite; a chemiresistor; a metal oxide gas sensor and a conducting polymer sensor, a dye-impregnated polymer film on fiber optic detector, a polymer-coated micromirror, an electrochemical gas detector, a

chemically sensitive field-effect transistor, a carbon black-polymer composite, a micro-electro-mechanical system device and a micro-opto-electro-mechanical system device.

12. A method in accordance with claim **10**, wherein said marker gas is a member selected from the group consisting of alkanes, alkenes, alkynes, dienes, alicyclic hydrocarbons, arenes, alcohols, ethers, ketones, aldehydes, carbonyls, carbanions, polynuclear aromatics, biomolecules, sugars, isoprenes isoprenoids, VOC, VOA, indoles, skatoles, diamines, pyridines, picolines, an off-gas of a microorganism and fatty acids.

13. A method in accordance with claim **10**, further comprising generating a response from said sensors and inputting said response to a neural net trained against known marker gases.

14. A method for detecting vaginitis, said method comprising:

contacting an array of sensors with vaginal vapor suspected of containing a marker gas indicative of vaginitis; and

detecting said marker gas to determine the presence of vaginitis.

15. A method in accordance with claim **14**, wherein said array of sensors comprises a member selected form the group consisting of a surface acoustic wave sensor, a quartz microbalance sensor; a conductive composite; a chemiresistor; a metal oxide gas sensor and a conducting polymer sensor, a dye-impregnated polymer film on fiber optic detector, a polymer-coated micromirror, an electrochemical gas detector, a chemically sensitive field-effect transistor, a carbon black-polymer composite, a micro-electro-mechanical system device and a micro-opto-electro-mechanical system device.

16. A method in accordance with claim **14**, wherein said marker gas is a member selected from the group consisting of alkanes, alkenes, alkynes, dienes, alicyclic hydrocarbons, arenes, alcohols, ethers, ketones, aldehydes, carbonyls, carbanions, polynuclear aromatics, biomolecules, sugars, isoprenes isoprenoids, VOC, VOA, indoles, skatoles, diamines, pyridines, picolines, an off-gas of a microorganism, methylamine, isobutylamine, putrescine, cadaverine, histamine, tyramine, phenethylamine and fatty acids.

17. A method in accordance with claim 14, further comprising generating a response from said sensors and inputting said response to a neural net trained against known marker gases.

18. A method for detecting ovulation, said method comprising:

contacting an array of sensors with vaginal vapor suspected of containing a marker gas indicative of ovulation; and

detecting said marker gas to determine ovulation.

19. A method in accordance with claim 18, wherein said array of sensors comprises a member selected from the group consisting of a surface acoustic wave sensor, a quartz microbalance sensor; a conductive composite; a chemiresistor; a metal oxide gas sensor and a conducting polymer sensor, a dye-impregnated polymer film on fiber optic detector, a polymer-coated micromirror, an electrochemical gas detector, a chemically sensitive field-effect transistor, a carbon black-polymer composite, a micro-electro-mechanical system device and a micro-opto-electro-mechanical system device.

20. A method in accordance with claim 18, wherein said marker gas is a member selected from the group consisting of alkanes, alkenes, alkynes, dienes, alicyclic hydrocarbons, arenes, alcohols, ethers, ketones, aldehydes, carbonyls, carbanions, polynuclear aromatics, biomolecules, sugars, isoprenes isoprenoids, VOC, VOA, indoles, skatoles, diamines, pyridines, picolines, an off-gas of a microorganism, androstenol, dehydroepiandrosterone sulfate and fatty acids.

21. A method in accordance with claim 18, further comprising generating a response from said sensors and inputting said response to a neural net trained against known marker gases.

22. A method for detecting a medical condition, said method comprising: contacting an array of sensors with mammalian body fluid suspected of containing a marker gas indicative of said medical condition; and detecting said marker gas to determine the presence of the medical condition.

23. A method in accordance with claim 22, wherein said array of sensors comprises a member selected from the group consisting of a surface acoustic

wave sensor, a quartz microbalance sensor, a conductive composite, a chemiresistor, a metal oxide gas sensor and a conducting polymer sensor, a dye-impregnated polymer film on fiber optic detector, a polymer-coated micromirror, an electrochemical gas detector, a chemically sensitive field-effect transistor, a carbon black-polymer composite, a micro-electro-mechanical system device and a micro-opto-electro-mechanical system device.